The GreenMOS® high voltage MOSFET utilizes charge balance technology to achieve outstanding low on-resistance and lower gate charge. It is engineered to minimize conduction loss, provide superior switching performance and robust avalanche capability.

The GreenMOS® Generic series is optimized for extreme switching performance to minimize switching loss. It is tailored for high power density applications to meet the highest efficiency standards.

GreenMOS®

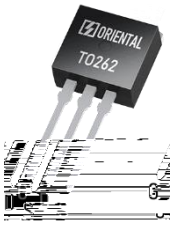
RoHS

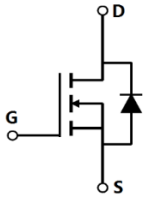
-
-
-

-
-
-
-
-
-

Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	960	V
$I_{D,\ pulse}$	15	A
$R_{DS(ON)\ ,\ max}$ @ V_{GS}=10V	1.2	
Q_g	12.5	nC

Product Name	Package	Marking
OSG90R1K2IF	TO262	OSG90R1K2I





Absolute Maximum Ratings at T_j=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	900	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	5	A
Continuous drain current[1], T_C=100 °C		3.2	
Pulsed drain current[2], T_C=25 °C	$I_{D,\ pulse}$	15	A
Continuous diode forward current[1], T_C=25 °C	I_S	5	A
Diode pulsed current[2], T_C=25 °C	$I_{S,\ pulse}$	15	A
Power dissipation[3], T_C=25 °C	P_D	83	W
Single pulsed avalanche energy[5]	E_{AS}	193	mJ
MOSFET dv/dt ruggedness, V_{DS} 480 V	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS} 480 V, I_{SD} D	dv/dt	15	V/ns
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R	1.5	°C/W
Thermal resistance, junction-ambient[4]	R	62	°C/W

Electrical Characteristics at T_j=25 unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	900			V	V_{GS}=0 V, I_D=250 A
		960	1070			V_{GS}=0 V, I_D , T_j=150 °C
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	V_{DS}=V_{GS}, I_D=250 A
Drain-source on-state resistance	$R_{DS(ON)}$		1.0	1.2		V_{GS}=10 V, I_D=2 A
			2.88			V_{GS}=10 V, I_D=2 A, T_j=150 °C
Gate-source leakage current	I_{GSS}			100	nA	V_{GS}=30 V
				-100		V_{GS}=-30 V
Drain-source leakage current	I_{DSS}			10	A	V_{DS}=900 V, V_{GS}=0 V

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}				pF	V_{GS}=0 V, V_{DS}=50 V, 00 kHz
Output capacitance	C_{oss}		37.5		pF	
Reverse transfer capacitance	C_{rss}		1.7		pF	
Turn-on delay time	$t_{d(on)}$		33.2		ns	V_{GS}=10 V, V_{DS}=400 V, R_G=33 I_D=5 A
Rise time	t_r		26.5		ns	
Turn-off delay time	$t_{d(off)}$					

Electrical Characteristics Diagrams

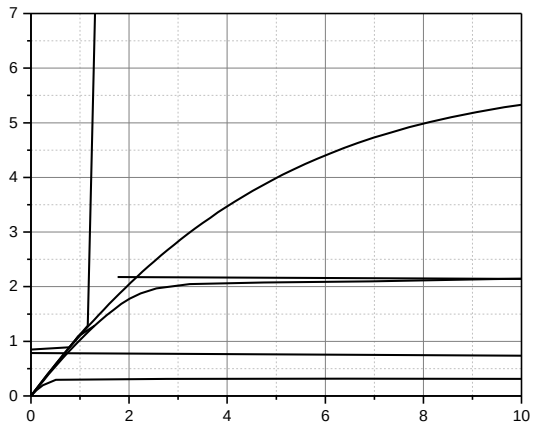


Figure 1. Typ. output characteristics

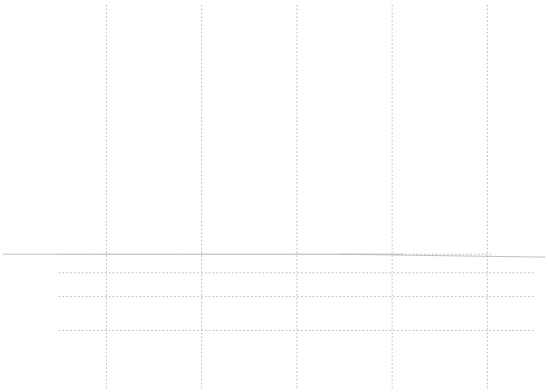


Figure 2. Typ. transfer characteristics

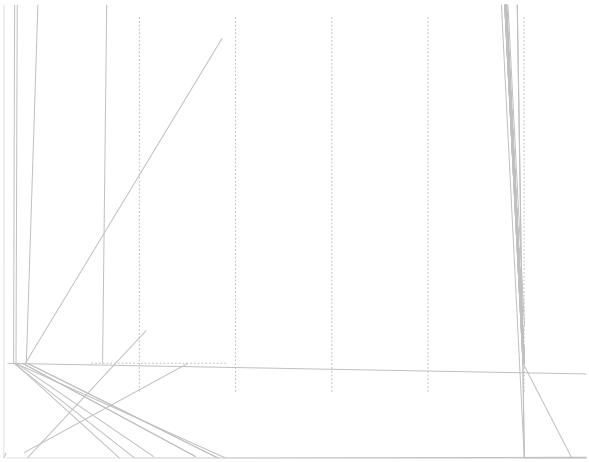


Figure 3. Typ. capacitances

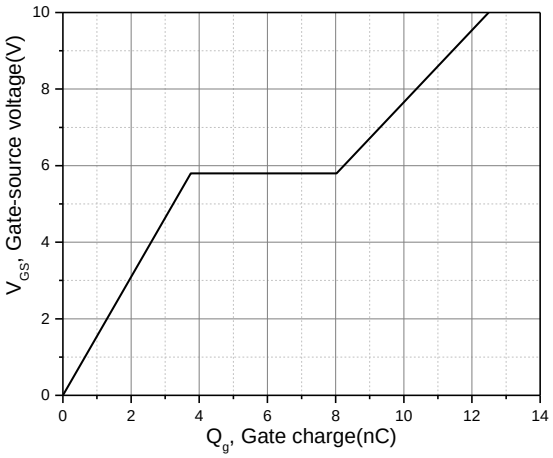


Figure 4. Typ. gate charge

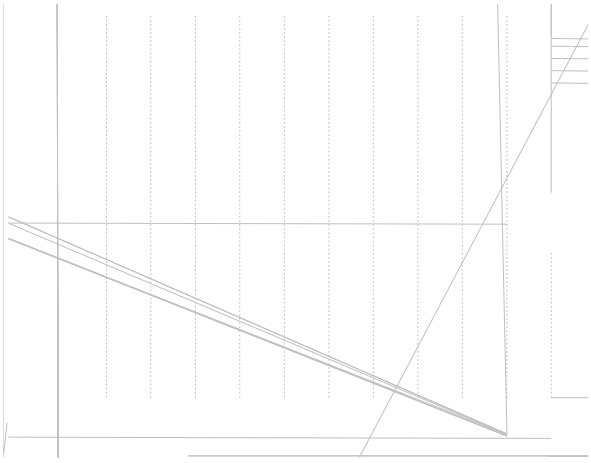


Figure 5. Drain-source breakdown voltage

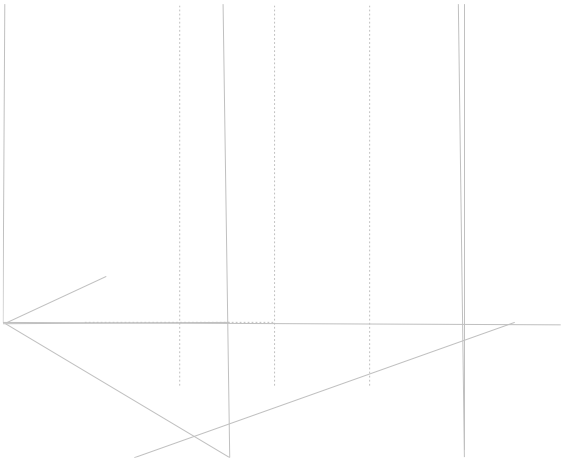


Figure 6. Drain-source on-state resistance

Figure 7. Threshold voltage

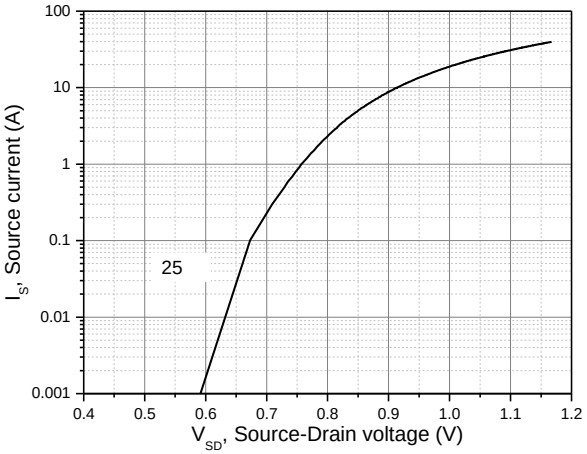


Figure 8. Forward characteristic of body diode

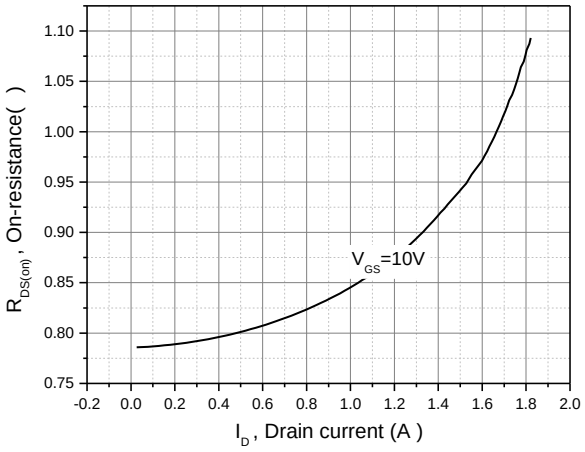


Figure 9. Drain-source on-state resistance

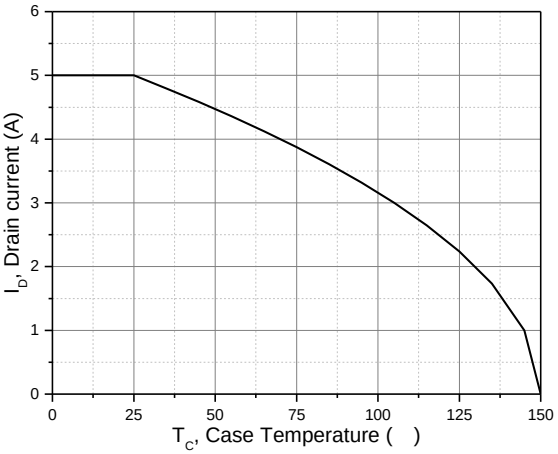


Figure 10. Drain current

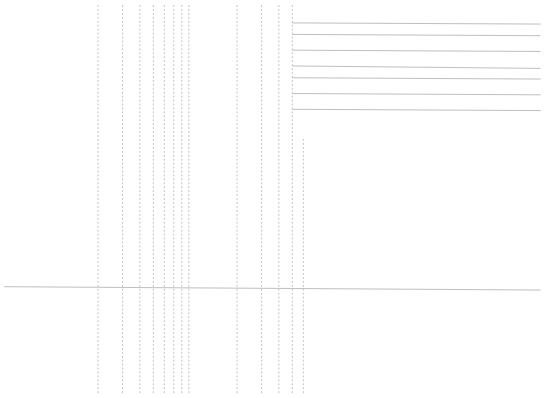


Figure 11. Safe operation area T_C=25 °C

Test circuits and waveforms

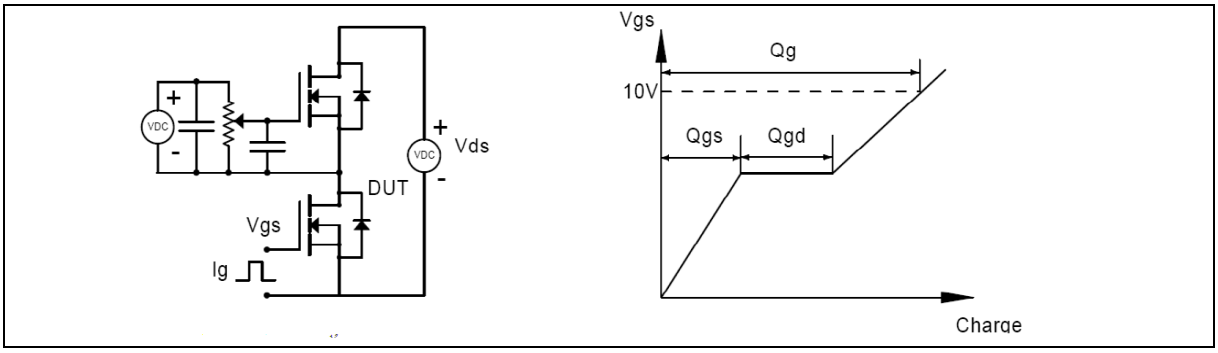


Figure 1. Gate charge test circuit & waveform

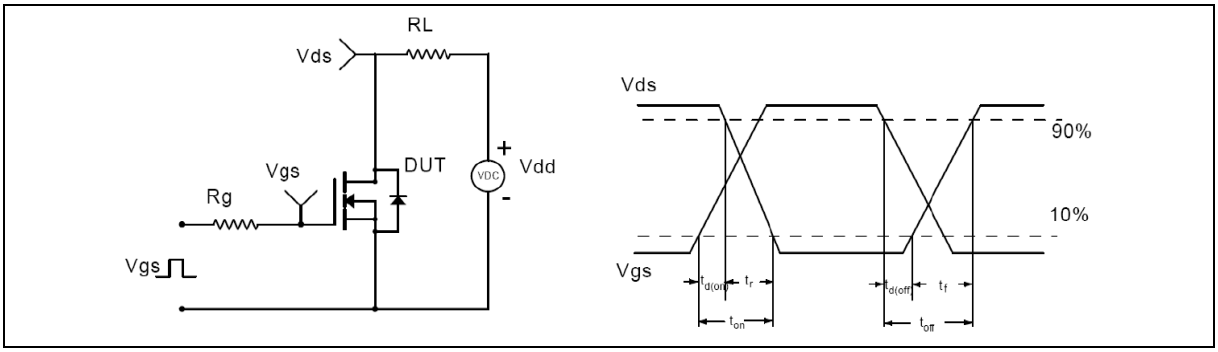


Figure 2. Switching time test circuit & waveforms

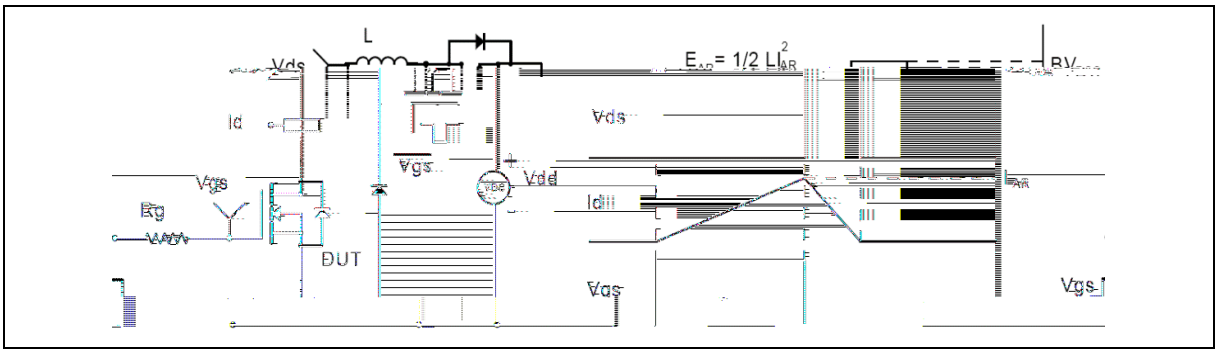
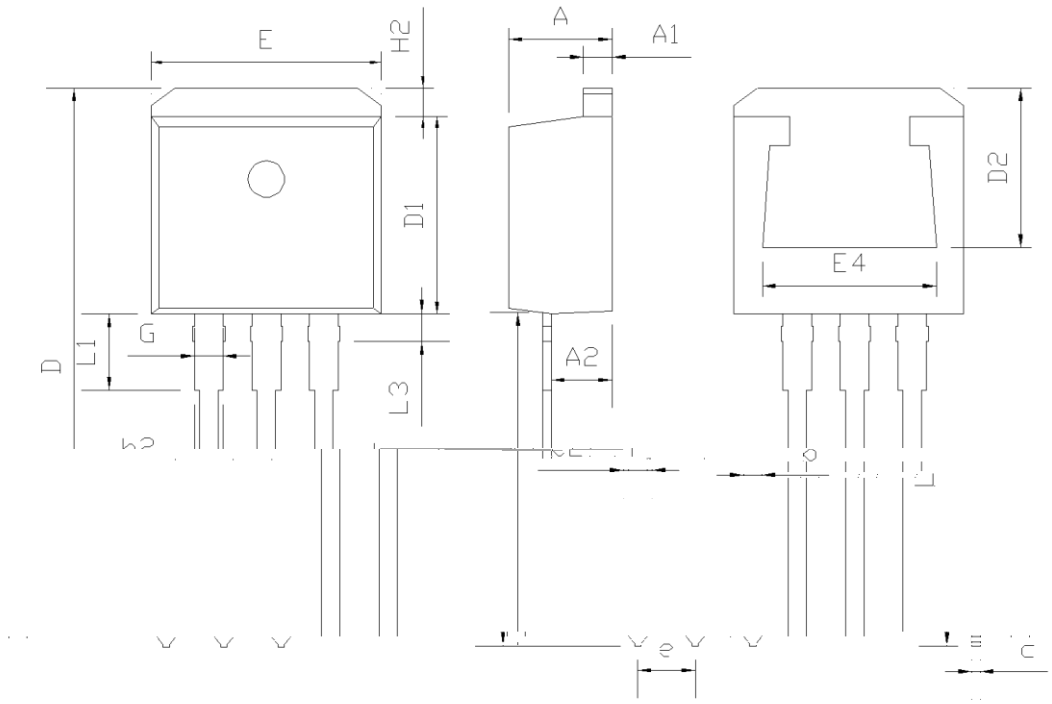


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.37	4.57	4.77
A1	1.22	1.27	1.42
A2	2.49	2.69	2.89
b	0.71	0.81	0.96
b2	1.17	1.27	1.42
c	0.28	0.38	0.53
D	23.20	23.70	24.02
D1	8.50	8.70	8.90
D2	6.00	-	-
E	9.86	10.16	10.36
E4	7.06	-	-
e	2.54BSC		
H2	-	-	1.50
L	13.33	13.73	14.13
L1	3.50	3.75	4.00
L3	1.28	1.43	1.58
G	1.25	1.35	1.50

Version 1: TO262-C package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO262-C	50	20	1000	6	6000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG90R1K2IF	TO262	yes	yes	yes